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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,776

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Bernd Wenderoth

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EXAMINER

STANLEY, JANE L

ART UNIT

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1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/542,776	<b>Applicant(s)</b> WENDEROTH ET AL.	
	<b>Examiner</b> JANE L. STANLEY	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20051020, 20071207</u> .                                      | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

The abstract of the disclosure is objected to because it contains legal phraseology and is more than one paragraph in length. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Information Disclosure Statement***

Regarding the Information Disclosure Statement filed on December 7, 2007, the inventor name of CN 1174186 A was updated and considered.

Regarding the Information Disclosure Statement filed on October 20, 2005, the Country of 945,638 was changed from "LONDON" to GB and considered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 19-40** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Regarding the limitation of claim 19** that the heat transfer liquid concentrate “contains no borates,” although applicants have support in the instant specification for heat transfer liquid concentrates without borates, said specification also appears to be inclusive of borates and “For the purpose of this invention, borate may be present in the heat transfer liquids or concentrates” (page 5 ln 23-24). Based upon the conflicting teaching in the original specification, it is noted that for the purpose of furthering examination, “contains no borates” has been interpreted as “may contain small amounts of borates”. This includes **claims 20-40**, which depend from **claim 19**.

**Claims 20-21 and 28** recites the limitation “component c)” in the preamble of each of the aforementioned claims. There is insufficient antecedent basis for this limitation in the claim. Applicant should clarify the claims by removing the term “component c)” and replacing said term with “one or more corrosion inhibitors selected from the group consisting of hydrocarbon-triazoles and of hydrocarbon-thiazoles”.

**Claims 25-27** recites the limitation “component b)” in the preamble of each of **claims 25 and 27**. There is insufficient antecedent basis for this limitation in the claim. Applicant should clarify the claims by removing the term “component b)” and replacing

said term with "one or more silicates". This includes **claim 26** as it depends from **claim 25**.

**Claim 29** recites the limitation "component d)" in the preamble. There is insufficient antecedent basis for this limitation in the claim. Applicant should clarify the claim by removing the term "component d)" and replacing said term with "one or more alkali metal, ammonium or substituted ammonium molybdates".

**Claim 30** recites the limitation "component e)" in the preamble. There is insufficient antecedent basis for this limitation in the claim. Applicant should clarify the claim by removing the term "component e)" and replacing said term with "one or more polymeric hard water stabilizers".

**Claims 33-35** recite the limitation "the freezing point depressant" in the preamble of each of the claims. There is insufficient antecedent basis for this limitation in the claim. Applicant should clarify the claims by removing the term "the freezing point depressant" and replacing said term with "the at least one glycol".

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 19-24 and 33-36** are rejected under 35 U.S.C. 102(b) as being anticipated by Ernhardt et al. (GB 2 059 432 A).

**Regarding claims 19-21**, Ernhardt et al. teaches an anti-freeze composition comprising 1,2-alkyleneglycols (pg 1 ln 55), 0.01 to 0.3% by weight alkanolamine (pg 1 ln 53; i.e. triethanolamine and tripropanolamine, pg 2 ln 31; see also 0.10% by weight triethanolamine in Examples 1-3), 0.03 to 0.3% by weight alkali silicate (pg 2 ln 46; see also 0.10% by weight sodium metasilicate-pentahydrate in Examples 2-3) and 0.03 to 0.3% by weight of benzotriazole (pg 2 ln 48; see also 0.05% by weight 1,2,3-benzotriazole in Examples 1-3). Ernhardt et al. further teaches that copolymers of maleic anhydride and methylvinylether may be present (pg 2 ln 19-20) as well as the presence of 1.0 to 4.0% by weight alkali salt of boric acid (pg 2 ln 45; see also 3.00% by weight Borax, Example 1 and 1.59% by weight disodiumtetraborate, Examples 2-3).

This anticipates the instant claimed ranges of:

0.05 to 10% by weight of one or more aliphatic amines of instant formula (I)

0.005 to 3% by weight of silicates

0 to 3% by weight of hydrocarbon-triazoles (corrosion inhibitors) (**claim 19**)

0.01 to 3% by weight of hydrocarbon-triazoles (**claim 20**) and

0.05 to 1% by weight of hydrocarbon-triazoles (**claim 21**)

**Regarding claims 22-24**, Ernhardt et al. further teaches the alkanolamine is tripropanolamine (pg 2 ln 31) which anticipates  $R^1$  to  $R^3$  as being linear alkyl radicals with 1 to 9 (**claim 22**) and 3 or 4 (**claim 23**) carbon atoms which have at least one hydroxyl substituent (**claim 24**).

**Regarding claims 33-35**, Ernhardt et al. further teaches the anti-freeze comprising 1,2-alkyleneglycols (pg 1 ln 55) i.e. ethylene glycol (pg 2 ln 6) (**claims 33**) which is present as the majority component of the composition for example, 94.91% by weight (Example 1) (**claim 34**). This anticipates the instant claimed range of  $\geq 75\%$ .

Furthermore, Ernhardt et al. teaches that the 1,2-alkyleneglycol used may be 1,2-propylene glycol (pg 2 ln 6) and that said 1,2-alkyleneglycol constitutes the remainder of the composition (93 to 95%, see composition a-k pg 1 ln 57 to pg 2 ln 6) which anticipates the instant claimed range of at least 85% by weight of 1,2-propylene glycol (**claim 35**).

**Regarding claim 36**, Ernhardt et al. further teaches the anti-freeze concentrate diluted with water in a ratio of 1:1 to 1:3 (pg 1 ln 43-44) which anticipates the instant claimed range of from 10 to 90% by weight of anti-freeze (heat transfer concentrate).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 25-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernhardt et al. as applied to **claim 19** above, and in view of Oppenlaender et al. (US No. 5,064,552).

**Regarding claims 25-27**, Ernhardt et al. teaches the claim limitations as set forth above with respect to **claim 19**.

Ernhardt et al. does not teach stabilized silicates. However, Oppenlaender et al. teaches a glycol-based antifreeze composition comprising corrosion-inhibiting additives (abstract; i.e. benzotriazole or tolutriazole, col 2 ln 15-16) and stabilized silicate (**claim 25**) (abstract) wherein said silicates are alkali silicates (component b, col 2 ln 3-11) stabilized with phosphorus silicon compounds (organosiliconphosphonates, **claim 26**) (pg 2 ln 62-65) and/or corresponding to disclosed formula IV (orthophosphates, **claim 27**) (col 3). Ernhardt et al. and Oppenlaender et al. are combinable because they are concerned with the same field of endeavor, namely glycol-based antifreeze concentrates containing corrosion inhibitors and silicate compounds. At the time of the invention a person having ordinary skill in the art would have found it obvious to have combined the stabilized silicates as taught by Oppenlaender et al. in the invention of Ernhardt et al. since Oppenlaender et al. suggest that such stabilized silicates produce



antifreeze compositions with improved corrosion resistance in both dilute and undiluted (concentrates) form (col 4 ln 41-42).

**Claims 19 and 28-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tachiiwa et al. (EP 0 299 942 A2) in view of Ernhardt et al. (GB 2 059 432 A).

**Regarding claims 19 and 28-30**, Tachiiwa et al. teaches an anti-freeze composition comprising glycols (pg 3 ln 44),

0.05 to 5% by weight silicates (pg 5 lns 56 and 60; this overlaps with the claimed range of 0.005 to 3%),

mercaptobenzothiazole (pg 5 ln 61), and methylbenzotriazole and benzotriazole (pg 6 ln 2) present in 0.3, 0.2 and 0.1% by weight, respectively (see Examples 1-6, Table 1, pg 8; this overlaps with the claimed range of 0 to 3%) (**claim 28**),

0.1 to 1% by weight sodium molybdate (pg 4 ln 27-28; this overlaps with the claimed range of 0 to 5%) (**claim 29**), and

0.01 to 0.1% by weight copolymers of maleic acid and acrylic acid (pg 5 ln 5-6 and ln 54; this overlaps with the claimed range of 0 to 1%) (**claim 30**).

Tachiiwa et al. does not teach from 0.05 to 10% by weight of one or more amines of instant formula (I) nor does Tachiiwa et al. teach the presence of borates. Tachiiwa et al. does teach that amine (i.e. phosphate salt of triethanolamine) can be used as a corrosion-proofing agent to take the place of borax (i.e. borates) (pg 1 ln 57-58; see also Table 2 Examples) However, Ernhardt et al. teaches a glycol-based anti-freeze

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composition comprising various corrosion inhibitors (pg 1 ln 21) including 1.59% by weight borates (alkali salt of boric acid, pg 1 ln 45; borax, pg 1 ln 58; for amount see Examples 2-3) and alkanolamines (pg 1 ln 53) such as triethanolamine and tripropanolamine (pg 2 ln 31; corresponding to the aliphatic amines of instant formula I for R<sup>1</sup> to R<sup>3</sup> as C<sub>2</sub> and C<sub>3</sub>-hydroxyalkyls). Furthermore, Ernhardt et al. teaches triethanolamine present at 0.10% by weight (see Examples 1-3, pg 3). Tachiwa et al. and Ernhardt et al. are combinable because they are concerned with the same field of endeavor, namely glycol-based antifreeze concentrates containing anti-corrosion inhibitors. At the time of the invention a person having ordinary skill in the art would have found it obvious to have combined the alkanolamines (aliphatic amines) and borates as taught by Ernhardt et al. in the invention of Tachiwa et al. and would have been motivated to do so since Ernhardt et al. suggest that such alkanolamines should be added with other corrosion inhibitors for the synergistic effect of promoting corrosion-reduction on a wider variety of metals (pg 1 ln 19-24).

**Regarding claim 31**, Tachiwa et al. teaches magnesium salts i.e. magnesium citrate (pg 4 ln 4-14).

**Regarding claim 32**, Tachiwa et al. teaches a pH from 6.5 to 9 (pg 6 ln 6) (which overlaps with the claimed range of from 6 to 11).

**Claims 37-40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernhardt et al. (GB 2 059 432 A) as applied to **claims 19 and 36** above, and in view of Smith (US No. 4,117,682).

**Regarding claims 37-40**, Ernhardt et al. teaches the basic claimed composition as set forth above, with respect to **claims 19 and 36**, as an anti-freeze suitable for use in cooling systems (automobile engines).

Ernhardt et al. does not teach a method of transferring heat in a solar plant. However, Smith teaches the use of glycol-based (i.e. triethylene glycol) liquids as a heat transfer media wherein said glycol flows through (i.e. is in contact with) the double paned windows (i.e. glass) of the solar collector system (see Figures 6 and 9) (col 3 ln 43-47 and 57-59; col 7 ln 4-7 and 11-27). Ernhardt et al. and Smith are combinable because they are concerned with the same field of endeavor, namely the use of glycol-based liquids as heat-transfer agents. At the time of the invention a person having ordinary skill in the art would have found it obvious to have combined the method of flowing glycol through double paned windows in solar collector systems as taught by Smith in the invention of Ernhardt et al., and would have been motivated to do so since Smith suggests such glycol coolants have an index of refraction close to that of the window panes and will not absorb energy from the sun (col 7 ln 16-18).

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANE L. STANLEY whose telephone number is (571)270-3870. The examiner can normally be reached on Monday-Thursday, 7:30AM-5PM, Alt. Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO/  
Supervisory Patent Examiner, Art Unit 1796  
27-May-08

JLS  
5/27/08